Log Event A

Borehole # 40-06-02

Borehole Information

Farm : S	**Tank :** S-106	**Site Number :** 299-W23-157
N-Coord : 36,156	**W-Coord :** 75,837	**TOC Elevation :** 663.42
Water Level, ft :	**Date Drilled :** 10/31/1971	

Casing Record

Type : Steel-welded	Thickness : 0.280	ID, in. : 6
Top Depth, ft. : 0	Bottom Depth, ft. : 100	

Borehole Notes:
This borehole was drilled in October 1971 to a depth of 100 ft using 6-in. casing. The drilling report does not indicate if the borehole casing was perforated or grouted. The casing thickness is presumed to be 0.280 in., on the basis of the published thickness for schedule-40, 6-in. steel tubing. The top of the casing, which is the zero reference for the SGLS, is approximately flush with the tank farm grade.

Equipment Information

Logging System : 1	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 04/1996	**Calibration Reference :** GJPO-HAN-5	**Logging Procedure :** P-GJPO-1783

Log Run Information

Log Run Number : 1	**Log Run Date :** 06/25/1996	**Logging Engineer:** Bob Spatz
Start Depth, ft.: 0.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 18.5	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 2	**Log Run Date :** 06/26/1996	**Logging Engineer:** Bob Spatz
Start Depth, ft.: 99.5	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 17.5	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

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Analysis Information

Analyst : E. Larsen

Data Processing Reference : P-GJPO-1787 Analysis Date : 03/21/1997

Analysis Notes :

This borehole was logged by the SGLS in two log runs. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The man-made radionuclide Cs-137 was detected in this borehole. The presence of Cs-137 was measured continuously from 10 to 13.5 ft. Relatively low Cs-137 concentrations were detected at the ground surface, 4 ft, and 9 ft. The maximum Cs-137 concentration detected within the borehole was about 0.67 pCi/g at a depth of 10.5 ft. A higher concentration of Cs-137 (6.8 pCi/g) was detected at the ground surface. However, this is not an accurate concentration value because the source-to-detector geometry at the top of the borehole casing differs from source-to-detector geometry used in the calibration.

The KUT log plots show a region of slightly elevated K-40 concentration values at 45 ft. Increased KUT concentrations were detected below about 67.5 ft.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank S-106.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.